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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LAMBRECHT, CHRISTOPHER M	
ART UNIT	**PAPER NUMBER**
2611	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,300	MATSUURA, SYUUJI	
	Examiner	Art Unit	
	Christopher M. Lambrecht	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,7 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (of record) in view of Davis (Davis et al., US005994965A).

With regard to claim 1, Abe discloses a cable modem tuner comprising an upstream circuit (200, pg. 4, ¶48) for transmitting a data signal to a CATV station (pg. 4, ¶48, lines 5-7), wherein said upstream circuit includes a variable-gain power amplifying circuit (502, page 5, ¶69, where an amplifier produces an output signal with more power than the input signal, an amplifier is inherently a power amplifier, see Hill, cited below[1]) receiving said data signal, and a control circuit (elements 511-520, and 522, fig. 5A) transmitting a control signal to said variable gain amplifying circuit (502) for controlling said transmission/interruption of said data signal (pg. 5, ¶0070, where input terminal 511 corresponds to terminal 213 of fig. 1, pg. 4, ¶0053). Abe fails to explicitly disclose that the detail structure of the variable gain power amplifier (502) comprises two separate elements: a gain controllable gain control circuit, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit.

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[1] *The Art of Electronics*, Horowitz and Hill, Cambridge University Press, 1989, p. 61

In an analogous art, Davis discloses a variable-gain power amplifying circuit (fig. 7) that comprises two separate elements: a gain controllable gain control circuit (variable attenuator, 25, fig. 7, where attenuation = 1/gain; hence, controlling attenuation inherently comprises controlling gain) for receiving a data signal (from amplifier input 305 via coupler output 311), and a power amplifying circuit (high-power amplifier 330) power-amplifying the data signal having been gain controlled by said gain control circuit (RF output of variable attenuator 25 feeds the input of high-power amplifier 330, col. 9, lines 7-9), for the purpose of automatically maintaining a predetermined overall gain (col. 11, lines 25-41).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the variable gain power amplifying circuit of Abe to include a gain controllable gain control circuit for receiving a data signal, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, for the purpose of automatically maintaining a predetermined overall gain in a cable modem upstream transmitter.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe in view of Vorenkamp, Shahar, and Johannes.

With regard to claim 7, Abe discloses a cable modem tuner including upstream circuit (200, pg. 4, ¶48) for transmitting a data signal to a CATV station and a receiving a down signal from said CATV station (pg. 4, ¶48, lines 5-7), comprising: a duplexer (201 & 101, pg. 4, ¶53, lines 16-17) for branching the data signal to said CATV station and the down signal from said CATV station; and a return pass circuit (206, pg. 4, ¶53) outputting said data signal to said duplexer; said receiving unit receiving the down signal branched by said duplexer (100, pg. 4, ¶48), and a variable-gain power amplifying circuit (502, page 5, ¶69, where an amplifier produces an output signal with more power than the input signal, an

amplifier is inherently a power amplifier, see Hill, cited above) receiving said data signal, and a control circuit (elements 511-520, and 522, fig. 5A) transmitting a control signal to said amplifying circuit (502) for controlling said transmission/interruption of said data signal (pg. 5, ¶0070, where input terminal 511 corresponds to terminal 213 of fig. 1, pg. 4, ¶0053). Abe fails to explicitly disclose said receiving unit includes an up converter for converting said down signal to a first intermediate frequency signal of higher frequency, a SAW filter for selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal of lower frequency for output, and said SAW filter is formed of an oscillation circuit including a print coil or an air core coil, and that the detail structure of the variable gain power amplifier (502) comprises two separate elements: a gain controllable gain control circuit, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit.

In an analogous art, Vorenkamp discloses a cable modem tuner comprising a receiving unit for receiving a down signal from a CATV station (pg. 34, ¶404), wherein said receiving unit includes an up-converter (fig. 5, 506, 514, FIRST LO) for converting said down signal to a first intermediate frequency signal of higher frequency (pg. 7, ¶118), a filter for selecting the first intermediate frequency signal output from said up converter (BPF located between 514 & 516 in the signal path, fig. 5), and a down converter (516, 508, SECOND LO, 518, BPF located immediately after 518 in signal path, fig. 5) converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output (pg. 7, ¶118), for the purpose of permitting selectivity, distortion, and stability to be controlled through frequency planning (¶118).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe to include said receiving unit includes an up-converter for converting said down signal to a first intermediate frequency signal of higher frequency, a filter for

selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output, as taught by Vorenkamp, for the purpose of permitting selectivity, distortion, and stability to be controlled through frequency planning.

In addition, Shahar discloses the use of a SAW filter, for the purpose of lowering cost (col. 9, lines 4-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe and Vorenkamp to include a SAW filter, as taught by Shahar, for the purpose of lowering cost of hardware in a cable modem tuner.

Furthermore, Johannes discloses a SAW filter formed of an oscillation circuit (resonator) including a print coil (shown in fig. 1a), for the purpose of providing high stopband rejection (col. 1, lines 4-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe, Vorenkamp, and Shahar to include a SAW filter formed of an oscillation circuit including a print coil, as taught by Johannes, for the purpose of providing high stopband rejection in a cable modem tuner.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe, Vorenkamp, and Shahar to include a SAW filter formed of an oscillation circuit including a print coil, as taught by Johannes, for the purpose of providing high stopband rejection in a cable modem tuner.

Additionally, in an analogous art, Davis discloses a variable-gain power amplifying circuit (fig. 7) that comprises two separate elements: a variable-gain power amplifying circuit (fig. 7) that comprises a gain controllable gain control circuit (variable attenuator, 25, fig. 7, where attenuation = 1/gain; hence, controlling attenuation inherently comprises controlling gain) for receiving a data signal (from amplifier

input 305 via coupler output 311), and a power amplifying circuit (high-power amplifier 330) power-amplifying the data signal having been gain controlled by said gain control circuit (RF output of variable attenuator 25 feeds the input of high-power amplifier 330, col. 9, lines 7-9), for the purpose of automatically maintaining a predetermined overall gain (col. 11, lines 25-41).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the variable gain power-amplifying circuit of Abe, Vorenkamp, Shahar, and Johannes to include a gain controllable gain control circuit for receiving a data signal, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, for the purpose of automatically maintaining a predetermined overall gain in a cable modem upstream transmitter.

Response to Arguments

4. Applicant's arguments filed 10/26/2004 have been fully considered but they are not persuasive. In particular Applicant submits that with regard to claim 1

a) neither Abe nor Davis, taken singly or in combination teach "a gain controllable gain control circuit receiving said data signal, at least one power amplifying circuit power amplifying the data signal having been gain controlled by said gain control circuit, and a control circuit transmitting a control signal to said at least one power amplifying circuit for controlling transmission/interruption of said data signal (p. 8);

b) the teachings of Abe fail to correspond to a power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit (p. 9);

c) the control signals inputted to the transmission processing section of Abe are not analogous to an input control signal inputted to "at least one power amplifying circuit" (p. 9);

d) Davis fails to disclose transmitting a control signal from a control circuit "to said at least one power amplifying circuit for controlling transmission/interruption of said data signal" (p. 10);

e) the incorporation of the teachings of Davis is not obvious because Abe controls gain in an amplifier and not a power amplifier (pp. 10-11).

And, with regard to claim 7

f) neither Abe, Vorenkamp, Shahar, nor Johannes either alone or in combination teaches "an up converter for converting said down signal to a first intermediate frequency signal output from said up converter, a SAW filter for selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal of lower frequency for output" (p. 13);

g) the combination of cited art fails to teach at least one power amplifying circuit power amplifying the data signal having been gain controlled by the control circuit (p. 13);

h) the teachings of Abe fail to correspond to at least one power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit (p. 13);

i) Vorenkamp also fails to disclose the feature recited in item (h) (pp. 13-14);

j) Vorenkamp is silent with respect to "a SAW filter for selecting the first intermediate frequency signal output from said up converter" (p. 14);

k) the SAW filter of Shahar fails to select a "first intermediate frequency signal output from said up converter" so that a down converter converts "the first intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal of lower frequency for output" (pp. 14-15);

l) Johannes fails to teach the feature recited in item (h) (p. 15);

m) the Examiner has failed to establish proper motivation for combining the references (p. 16);

o) that the Examiner's rejection is predicated upon impermissible hindsight, and not upon a suggestion from the combination of the applied references that would have been derivable by one versed in the art from the references themselves (p. 16);

p) accordingly, the Examiner has failed to established a *prima facie* case of obviousness of claim 7 (p. 16); and,

q) therefore, the rejections of claims 1 and 7 should be withdrawn (p. 17).

In response to a), Examiner submits the features claimed are taught by the combination of Abe and Davis as set forth in the new rejection of claim 1, above.

In response to b), Examiner submits that though Abe fails to explicitly describe "amplifier" as "power amplifying circuit", as evidenced by the citation of Hill (see above), an amplifier inherently constitutes a power amplifier, as set forth in the new rejection of claim 1, above.

In response to c), Examiner submits that the control signals cited from Abe are analogous to the claimed subject matter, as set forth in the new rejection of claim 1, above.

In response to d), Examiner submits that Abe does in fact disclose transmitting a control signal from a control circuit "to said at least one power amplifying circuit for controlling transmission/interruption of said data signal", as set forth in the new rejection of claim 1, above.

In response to e), Examiner submits that in light of the new rejection of claim 1, namely, that Abe reference inherently comprises a "power amplifying circuit", the prior art cited does in fact teach controlling gain in a power amplifier.

In response to f), Examiner submits that the features claimed are taught by the combination of Abe, Vorenkamp, Shahar, and Johannes as set forth in the new rejection of claim 7, above.

In response to g), Examiner submits that the features of the amended claim 7 are taught by the new rejection of claim 7.

In response to h), Examiner submits that though Abe fails to explicitly describe "amplifier" as "power amplifying circuit", the as evidenced by the citation of Hill (see above), an amplifier inherently constitutes a power amplifier, as set forth in the new rejection of claim 7, above.

In response to i), Examiner submits that Vorenkamp was not relied upon to teach the recited features, and that they are taught by the combination as set forth in the new rejection of claim 7, above.

In response to j), Examiner submits that while Vorenkamp may be silent with respect to a SAW filter, Vorenkamp does discloses a "filter for selecting the first intermediate frequency signal output from said up converter", as set forth in the rejection of claim 7, and that Vorenkamp was not relied upon to the specific type of filter known as a SAW filter.

In response to k), Examiner submits that though the Applicant believes the SAW filter of Shahar fails to select a "first intermediate frequency signal output from said up converter" so that a down converter converts "the first intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal of lower frequency for output", Shahar was not relied upon to teach this functionality. Instead, Vorenkamp disclose a filter to select a first intermediate frequency signal output from said up converter so that a down converter converts the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for out (as set forth in the rejection of claim 7). Shahar evidences the fact that SAW filters are well known electronic filters, and are advantageous for at least the reason that they reduce cost.

In response to l), Examiner submits that Johannes was not relied upon to teach the features recited in item (h).

In response to m), Examiner submits that the motivation to combine the aforementioned references is clearly set forth in rejections above. Applicant raises issue specifically with the motivation to combine the teachings of Abe and Davis, for the reason indicated in item (e) above. However, this issue was addressed in the response to item (e) above, and has been alleviated.

In response to o), Examiner submits that the only specific issue raised with respect to proper motivation to combine the cited references was addressed with respect to item (e), and therefore no further issues remain.

In response to p), in view of the above responses, Examiners submits that a *prima facie* case of obviousness has been established of claim 7.

Finally, in response to q), Examiner submits that in view of the above responses, the rejections of claims 1 and 7 will not be withdrawn.

Conclusion

5. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Lambrecht whose telephone number is (703) 305-8710. The examiner can normally be reached on 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher M. Lambrecht
Examiner
Art Unit 2611

CML

CHRIS GRANT
PRIMARY EXAMINER